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Cont.

20. The tire of Claim 14, wherein the composition comprises a coupling agent and/or covering agent in an amount of between 1/100 and 20/100 by weight of reinforcing white filler.

21. The tire of Claim 16, wherein the diene elastomer has been modified on the chain or at the end of the chain by a branching agent, starring agent or combinations thereof.

22. The tire of Claim 21, wherein the branching agent is divinylbenzene.

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#### REMARKS

This paper is submitted in response to the Office Action mailed May 10, 2001. Claims 1-13 have been canceled. Claims 14-22 have been added. Upon entry of the amendments herein, claims 14-22 are pending in the present application.

Applicant submits that no new matter has been introduced by new claims and support for the new claims are found in the specification. The new claims are directed to a pneumatic tire comprising an elastomeric internal filler mix in its bottom zone in the form of 1) a profiled member which is located axially to the outside of the upturn of the carcass reinforcement or 2) a reinforcement profile for the beads of the tire which is located radially above and adjacent to the bead wire (specification, paragraph at bottom of page 4 to top of page 5). The specification describes the use of these fillers for internal tire applications, not for treads or sidewalls. The specification clearly describes the need for such an elastomeric internal filler mix, which has high mechanical cohesion and low

hysteresis, for use in the "cushion mixes" in the bottom zone of tires. These properties ensure longer use for tires on vehicles which bear heavy loads and require multiple recapping when tire treads are worn.

New claims appear in the preceding "IN THE CLAIMS" section. Attached hereto is a marked-up version of the changes made to this section. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE" and is only included for the Examiner's convenience. Should any discrepancies be discovered, the version presented in the preceding "IN THE CLAIMS" section shall take precedence.

### **35 U.S.C. § 102(e) Rejection**

The Examiner has rejected Claims 1-3, 5, and 7-9 under 35 U.S.C. §102(e) as being anticipated by Matsuo (US Patent No. 5,929,157). The Examiner maintains that Matsuo teaches fillers comprising ranges of silica, and carbon black that overlap the instant claims. The Examiner acknowledges that Matsuo teaches an elastomeric filler mix used for reinforcement of tire sidewalls. The Examiner has maintained that Matsuo anticipates the present claims.

The Examiner has also rejected Claims 1-3, 5, and 6 under 35 U.S.C. §102(e) as being anticipated by EP799854. The Examiner alleges that EP 799854 teaches a filler mix comprising a majority of natural rubber and a range of carbon black that overlaps the instant claims. The Examiner further alleges that EP 799854 teaches carbon black having a specific surface area within a range that overlaps the instant claims. The Examiner has maintained that EP799854 anticipates the present claims.

The Examiner has further rejected Claims 1-3, and 7 under 35 U.S.C. §102(e) as being anticipated by EP738614. The Examiner alleges that EP 738614 teaches ranges of elastomers, filler, silica, and carbon black that overlap the instant claims and has maintained that EP738614 anticipates the present claims.

Anticipation requires that all the elements and limitations of the claim be found within a single prior art reference. There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Formulation v. Genentech, Inc.*, 927 F.2d 1565 (Fed. Cir. 1991).

Claims 1-13 have been canceled and replaced by claims 14-22. In the present invention, the newly added claims describe a pneumatic tire which comprises an internal elastomeric filler mix in the form of the profiled member or reinforcement profile located in the internal portions of a tire. In contrast, Matsuo, EP799854, and EP738614 only describe rubber compositions for use in external tire parts, i.e. sidewalls, treads, under treads, side treads, and tread base. The cited prior art fails to teach the use of such rubber compositions in its bottom zone in the form of a profiled member which is located axially to the outside of the upturn of the carcass reinforcement, or a reinforcement profile for the beads of the tire which is located radially above the bead wire and adjacent to the bead wire as claimed. Given the differences in the claimed invention and the cited prior art, the claims cannot be anticipated by Matsuo, EP799854, or EP738614. The Applicant respectfully submit that the rejections under 35 U.S.C. §102(e) should be withdrawn.

**35 U.S.C. § 103(a) Rejection**

The Examiner has rejected claims 4, 10, and 12 under 35 U.S.C. §103(a) as being unpatentable over Matsuo (US Patent No. 5,929,157) in view of Takeichi et al. (US Patent 6,008,295). The Examiner has alleged that Matsuo teaches elastomeric fillers where the ranges of filler, silica, carbon black, and ratio of coupling agent to silica that overlap the instant claims. The Examiner also alleges that Takeichi et al. discloses the use of a silicon or tin halide modified diene elastomer in order to produce a composition with excellent traction, rolling resistance, and fracture property like wear performance. The Examiner maintains that it would have been obvious to one skilled in the art to use a diene elastomer of Takeichi et al. with the rubber composition of Matsuo to produce a rubber composition with excellent traction, rolling resistance, and fracture property like wear performance to derive the present invention.

The Examiner has rejected claims 11 and 13 under 35 U.S.C. §103(a) as being unpatentable over Matsuo (US Patent No. 5,929,157) in view of Fukahori et al. (US Patent No. 5,844,050). The Examiner alleges that Fukahori et al. disclose a rubber composition with a diene elastomer comprising a majority of cis-1,4 bonds which is branched using divinylbenzene and/or functionalized by terminating with amine groups to produce a composition with good abrasion resistance, fatigue resistance and tensile properties. The Examiner maintains that it would have been obvious to one skilled in the art to use the diene elastomer of Fukahori et al. with the rubber composition of Matsuo to produce the rubber composition of the present invention.

The Examiner has rejected claims 1-5, 7-10 and 12 under 35 U.S.C. §103(a) as unpatentable over Suzuki et al. (US Patent No. 5,902,856). The Examiner alleges that

Suzuki teaches an elastomeric filler mix with ranges of filler comprising silica, carbon black, and a ratio of coupling agent to silica that overlap the instant claims. Though the Examiner acknowledges that the instant invention can not be "clearly envisaged" from Suzuki, the Examiner maintains "...that it would have been within the bounds of routine experimentation, as well as within the skill level of one of ordinary skill in the art, to use an elastomeric filler mix which is both disclosed by Suzuki and encompassed within the scope of the present claims, and thereby arrive at the claimed invention." (Office Action dated 08-28-2000 at page 8, paragraph 10).

The Examiner has rejected claim 11 under 35 U.S.C. §103(a) as unpatentable over Suzuki et al. (US Patent No. 5,902,856) as applied to claims 1-5, 7-10, and 12 and further in view of either Fukahori et al. (US Patent No. 5,844,050). The Examiner has also rejected claim 13 under 35 U.S.C. §103(a) as unpatentable over Suzuki et al. (US Patent No. 5,902,856) as applied to claims 1-5, 7-10, and 12 and further in view of either Fukahori et al. (US Patent No. 5,844,050) or Nakamura et al. (US Patent No. 6,075,092). The Examiner recognizes that the requirement of diene elastomer modified by a branching agent such as divinylbenzene is not disclosed by Suzuki et al., but alleges that it would have been obvious to one skilled in the art to use the divinylbenzene branching agent of Fukahori et al. with the elastomeric filler mix of Suzuki et al. to produce a mix of good abrasion resistance, fatigue resistance, and tensile properties and arrive at the present invention. Further, the Examiner alleges that Nakamura et al. discloses a rubber composition with a modified elastomer with carboxyl, carbonyl or amine group to produce a composition with balanced tensile strength, heat buildup, and processability. The Examiner maintains that it would have been obvious to one skilled in the art to

functionalize the diene elastomer of Suzuki et al. in light of Fukahori et al. and Nakamura et al. to produce a mix of good abrasion resistance, fatigue resistance, and tensile properties or, alternatively, balanced tensile strength, heat buildup, and processability.

The Examiner has also rejected claims 1, 2, 5, and 7-9 under 35 U.S.C. §103(a) as being unpatentable over Takagishi et al. (US 6,013,737). The Examiner alleges that Takagishi et al. teaches an elastomeric filler mix with ranges of filler comprising silica, and carbon black that overlap the instant claims. Though the Examiner acknowledges that the instant invention can not be "clearly envisaged" from Takagishi et al., the Examiner maintains that it would be within the bounds of routine experimentation to arrive at the present invention.

Applicant respectfully disagrees with the rejections. Claims 1-13 have been canceled and replaced by claims 14-22. Claims 15-22 are dependent on independent Claim 14. Therefore, the response to these rejections will be addressed primarily to Claim 14.

As set forth in *Graham v. Deere*, a finding of obviousness under 35 U.S.C. §103 requires a determination of the scope and content of the prior art, the level of skill in the art, the differences between the claimed subject matter and the prior art, and whether the differences are such that the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made. *Graham v. John Deere, Inc.*, 383 U.S. 1 (1966). The art must provide both the suggestion and a reasonable expectation of success. *In re Vicki*, 947 F. 2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The prior art reference(s) must teach or suggest all the claim limitations. Both the suggestion and a reasonable expectation of success must be present in the references

themselves. See M.P.E.P. § 2143 et seq. The cited prior art considered independently or together fail to satisfy the recited criteria.

Matsuo describes a rubber composition for the visible, external sidewall portions of a tire with lowered rolling resistance, excellent wear resistance and wet property and low electric resistance, all measures of rubber compositions required for external use in a tire. The present invention concerns an internal filler mix, used in the profiled member or reinforcement profile of a tire in the bottom zone of a tire, and designed for improved cohesion and low hysteresis.

EP799854 concerns a rubber composition for tire cap tread, under tread, side tread and tire belt cord covering and thus designed to exhibit properties required for external tire parts. These properties include superior  $\tan \delta$  temperature dependency of silica and excellent wear resistance without problems of low electroconductivity due to silica. The present invention concerns a tire comprising an internal filler mix, used in the profiled member or reinforcement profile of the tire in the bottom zone of the tire, and designed for improved cohesiveness and low hysteresis.

EP738614 describes a tire with a cap/base construction composed of rubber compositions imparting a cooler running tire and improved rolling resistance and treadwear properties to the tire. These are improved qualities of a rubber composition which is utilized for external portions of a tire. The present invention is directed to a tire composed of an internal filler mix in its profiled member or reinforcement profile for a tire with improved cohesion and low hysteretic properties.

Takeichi et al. relates to a rubber composition for a tire tread to produce a tire with improved rolling resistance, wet traction and handling and traction in snow and ice.

These properties have nothing to do with a rubber composition for an internal filler mix used in the bottom zone of a tire, as presently claimed.

Fukahori concerns a modified conjugated diene polymer and its use as a rubber composition in tires to impart improved abrasion resistance, fatigue resistance, tensile and rebound resilience properties. These properties are advantageous for use in external portions of a tire. The present invention defines a tire composed of an internal filler mix in its profiled member or reinforcement profile for a tire with improved cohesion and low hysteretic properties.

Suzuki et al. describes a diene rubber composition mixture which produces a tire with improved abrasion resistance, resiliency and processability. These properties would contribute to the tire if utilized in the external portions of the tire. The present invention is directed to a tire composed of an internal filler mix in its profiled member or reinforcement profile for a tire with improved cohesion and low hysteretic properties.

Takagishi describes a rubber composition which exhibits reduced heat buildup, improved tensile strength and abrasion resistance. Takagishi neither discloses nor suggests a tire having an elastomeric internal filler having improved cohesion and low hysteretic properties as claimed.

The present invention is directed to a tire which comprises an internal elastomeric filler mix in the bottom zone of the tire in the profiled member located axially to the outside of the upturn of the carcass reinforcement or in the reinforcement profile for the beads of the tire which is located radially above and adjacent to the bead wire for the tire with improved cohesion and low hysteretic properties. The internal filler mix as applied to the profiled member and reinforcement profile of a tire imparts high cohesive

properties to avoid or reduce damages such as breaks which may spread as far as the inner or outer surface of the tire. In addition, the internal filler mix of the present invention minimizes hysteresis to avoid degradation of mechanical properties of the tire and reinforcement due to thermochemical and/or thermo-oxidizing aging. These properties contribute to a longer use tire and address this need by applying a rubber composition with high cohesive properties and low hysteretic properties to the internal portions of the tire.

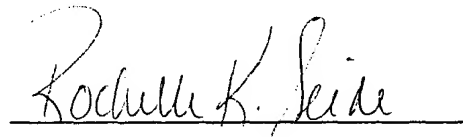
The cited prior art does not disclose or suggest a rubber composition for use as an internal elastomeric filler for the profiled member or reinforcement profile of a pneumatic tire as presently claimed. Further, the prior art discloses rubber compositions for use in tires to improve qualities pertaining to external portions of tires, such as rolling resistance, wear resistance, cut resistance, traction and handling in ice and snow conditions, etc. Since the prior art does not disclose, suggest nor teach a rubber composition for internal tire parts such as the profiled member or reinforcement profile, there is no reasonable expectation of success. Accordingly, one skilled in the art would not look to the cited prior art. Further, the prior art references do not suggest all claim limitations of the present invention. The Applicant asserts that the present invention is not obvious over the prior art and request that the rejections under 35 U.S.C. §103(a) be withdrawn.

#### CONCLUSION

Based on the foregoing amendments and remarks, Applicant submits that the present application is in condition for allowance. A Notice of Allowance is respectfully requested. Applicant requests a three month extension of time and enclose herewith the

required fee pursuant to 37 C.F.R. § 1.17(a)(3). Should any additional fees be required in connection with this response, the Commissioner is hereby authorized to charge Deposit Account Number 02-4377. A duplicate of this page is enclosed.

Respectfully submitted,

A handwritten signature in cursive script, reading "Rochelle K. Seide", is written over a horizontal line.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claims 1-13 have been canceled.

The following claims have been added:

14. A pneumatic tire comprising in its bottom zone an elastomeric internal filler mix in the form of a profiled member which is located axially to the outside of the upturn of the carcass reinforcement, or a reinforcement profile for the beads of the tire which is located radially above the bead wire and adjacent to said bead wire, said elastomeric internal filler mix comprising a cohesive and low-hysteretic rubber composition wherein the elastomeric matrix comprises more than 70 phr of natural rubber or synthetic polyisoprene having double bonds, the majority of which are cis-1,4 bonds, and a reinforcing filler selected from among:

(i) a white filler of the silica and/or alumina type comprising SiOH and/or AlOH surface functions, which is selected from among the group consisting of precipitated or pyrogenic silicas, aluminas, aluminosilicates and carbon blacks modified during or after synthesis to have SiOH or AlOH functions at their surface, wherein said white filler has a specific area of between 30 and 260 m<sup>2</sup>/g and is present in an amount of between about 15 phr and 40 phr, and

(ii) a blend of carbon black having a BET specific surface area of between 30 and 160 m<sup>2</sup>/g, and the white filler of (i), in which the total amount of filler is between about 15 phr and 50 phr, wherein the amount of white filler is greater than or equal to the amount of carbon black in phr minus 5 phr.

15. The tire of Claim 14, wherein the composition further comprises an additional diene elastomer, wherein the natural rubber or synthetic polyisoprene comprises the majority of elastomer in the composition.
16. The tire of Claim 15, wherein the additional diene elastomer is selected from the group consisting of a polybutadiene having double bonds, the majority of which are cis-1,4 bonds, a butadiene/styrene emulsion or solution copolymer having double bonds, the majority of which are trans-1,4, bonds, a butadiene/isoprene copolymer, and a styrene/butadiene/isoprene terpolymer.
17. The tire of Claim 16, wherein the diene elastomer has active groups on the elastomer chain or at the end of the elastomer chain, said active groups being active with carbon black or with white fillers, or is starved by a carbonyl, silicon or tin halide.
18. The tire of Claim 14, wherein the carbon black of (ii) has a BET specific surface area of between 90 and 150 m<sup>2</sup>/g.
19. The tire of Claim 14, wherein the composition comprises a white filler as sole filler in an amount of 20 to 35 phr.

20. The tire of Claim 14, wherein the composition comprises a coupling agent and/or covering agent in an amount of between 1/100 and 20/100 by weight of reinforcing white filler.

21. The tire of Claim 16, wherein the diene elastomer has been modified on the chain or at the end of the chain by a branching agent, starring agent or combinations thereof.

22. The tire of Claim 21, wherein the branching agent is divinylbenzene.